

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/617,204  
Attorney Docket No.: Q76412

### **AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

#### **LISTING OF CLAIMS:**

1. (currently amended): A method of transmitting a digital signal over an optical fiber link, said method comprising: ~~the steps of~~  
modulating said digital signal onto an optical carrier using frequency shift keying modulation;  
coupling said frequency modulated optical signal into an optical fiber;  
~~at the receive side end of said optical fiber,~~ demodulating the received optical signal to obtain said transmitted digital signal at the receive side end of said optical fiber;  
wherein ~~for~~ said frequency shift keying modulation ~~step,~~ has a modulation index  $h < 1/2$  ~~is used,~~ and  
an optical power ~~launched of~~ said modulated optical signal launched into the optical fiber is such that ~~said fiber operates in a non-linear transmission regime to improve transmission characteristics~~ effect occurs in the transmission of the modulated optical signal by the optical fiber, and  
said modulation index  $h$  being defined as maximum frequency separation of said digital signal divided by the bitrate of said digital signal.

2. (original): A method according to claim 1, wherein said modulation index  $h$  is in the range between  $1/2$  and  $1/4$ .

3. (original): A method according to claim 1, wherein said modulation index  $h$  is  $1/3$ .

4. (currently amended): An optical transmission system comprising an optical transmitter, an optical fiber and an optical receiver,  
wherein ~~said fiber showing a non-linear transmission effect~~, said optical transmitter ~~being~~ is adapted to modulate a digital signal to be transmitted onto an optical carrier using frequency shift keying modulation,

wherein ~~said optical transmitter is adapted to use for~~ said frequency shift keying modulation has a modulation index  $h < 1/2$ , and

an said optical power transmitter is configured to launch the modulated optical signal  
~~launched~~ into the optical fiber with an optical power set is such that said fiber operates in a non-  
linear transmission ~~regime to improve transmission characteristics~~ effect occurs in the  
transmission of the modulated optical signal by the optical fiber, and

said modulation index  $h$  being defined as maximum frequency separation of said digital  
signal divided by the bitrate of said digital signal.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/617,204  
Attorney Docket No.: Q76412

5. (original): An optical transmission system according to claim 4 further comprising an optical dispersion compensation module.

6. (currently amended): An optical transmission system according to claim 4, wherein said receiver comprising an optical filter to demodulate the optical signal.

7. (original): An optical transmission system according to claim 6, wherein said optical filter is a Mach-Zehnder interferometer which two interferometer arms being coupled to corresponding photodiodes which are in turn coupled to a differential electrical receiver.

8. (currently amended): An optical transmitter for an optical transmission system,  
wherein said optical transmitter being adapted to modulate a ~~digital signal~~ Digital Signal  
(DS) to be transmitted over an optical fiber link onto an optical carrier using frequency shift  
keying modulation, and  
wherein ~~said optical transmitter is adapted to use for~~ said frequency shift keying  
modulation has a modulation index  $h < 1/2$ , and

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/617,204  
Attorney Docket No.: Q76412

~~an~~ said optical transmitter is configured to launch the modulated optical signal into the optical fiber with an optical power set ~~power launched~~ such that into the optical fiber is such that said fiber operates in a non-linear transmission regime to improve transmission characteristics effect occurs in the transmission of the modulated optical signal by the optical fiber, and

said modulation index  $h$  being defined as maximum frequency separation of said Digital Signal divided by the bitrate of said ~~digital signal~~ Digital Signal.

9. (original): An optical transmitter according to claim 8 comprising a directly modulated laser.